



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/682,043	10/09/2003	Kari Kirjavainen	29385/39667	8156

4743 7590 11/01/2007
MARSHALL, GERSTEIN & BORUN LLP
233 S. WACKER DRIVE, SUITE 6300
SEARS TOWER
CHICAGO, IL 60606

EXAMINER

BRINEY III, WALTER F

ART UNIT	PAPER NUMBER
----------	--------------

2615

MAIL DATE	DELIVERY MODE
-----------	---------------

11/01/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/682,043

Applicant(s)

KIRJAVAINEN, KARI

Examiner

Walter F. Briney III

Art Unit

2615

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-18 and 20-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15 and 27 is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☒ Claim(s) 1,2,4-14,16-18 and 20-26 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. **Claims 1 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Brettell (US Patent 3,136,867).**

Claim 1 is limited to “an electromechanical transducer.” With the exception of the newly added limitation, this claim is rejected for the same reasons apropos the rejection of claim 1, as covered by *Brettell*, in the Non-Final Rejection filed 20 March 2007. The applicant amended this claim to recite “at least two separately and dynamically controlled transducer elements...and...controlling means for separately and dynamically controlling the transducer elements” (emphasis original.) Applicant’s arguments suggest that the term *dynamically* actually means *active*, widely understood in the art of electronics as devices that are capable of delivering energy, or for the term *dynamically* to be an incorporation of the limitation *controlling more than delay*. See *Arguments* at 9 (22 June 2007) (“the Brettell patent only discloses passive filtering...in the present invention, on the other hand, at least two transducer elements are separately and dynamically controlled” (emphasis original)) (“this dynamic control...involves more than merely delaying the same signal.”)

Note that the incorporation of limitations is strictly prohibited, and further note that that the term *dynamically* finds no antecedent support in the specification. This latter finding evinces that applicant has not expressly disclaimed the ordinary and customary uses of the term

Art Unit: 2615

dynamically; therefore, it is these uses that will be used to construct the metes and bounds of the claim when read in light of the specification.

Specifically, *dynamically* has several accepted meanings:

“1 *also* **dy·nam·i·cal** \-mi-kəl\ **a:** of or relating to physical force or energy **b:** of or relating to **dynamics**

2 marked by usually continuous and productive activity or change <a *dynamic* city>

3 *of random-access memory* : requiring periodic refreshment of charge in order to retain data

— **dy·nam·i·cal·ly** \-mi-k(ə-)lē\ *adverb*”

Merriam-Webster OnLine [retrieved 28 October 2007] [online] <URL: <http://www.m->

[w.com/dictionary/dynamically](http://www.m-w.com/dictionary/dynamically).> The first and second foregoing sense of the word are consistent with applicant’s paragraph 40, which applicant specifically points to for support of the term in question. *Arguments* at 9. For example, a pressure measurement is fed back from the transducer to the transducer’s driving circuit. *Specification* at [0040] (filed 09 October 2003.) In this way, control of the transducer relates to electrical energy (like sense 1) and is in continuous change because it is accounting for feedback (like sense 2). Moreover, the transducer reproduces sound according to signal S1, which is a time-varying sound. *Id.* at [0041]. This is another example of dynamic control since the thickness of the transducer rapidly changes to create oscillating sound patterns analogous to the oscillating patterns of signal S1 (like sense 2). Note that the preceding analysis also serves to distinguish what *means* applicant’s claim encompasses under 35 U.S.C. § 112 ¶ 6.

As shown in the Non-Final Rejection, the *Brettell* transducer comprises two transducer elements 46, 48 that are separately controlled since each is driven by an inductor. Moreover, because each is driven by an alternating current to create sound, they are dynamically controlled

Art Unit: 2615

in the same sense that the transducer elements of the claimed invention are controlled. *Brettell* at col. 3 ll. 1-22.

Although not to be considered a part of this rejection, replacing the term *dynamically* with the term *active* or *feedback* would probably not render the claim patentable when *Brettell* is taken in combination with US Patent 4,654,546 (patented 31 March 1987) (herein *Kirjavainen*) (fig.5b depicts a pressure sensing feedback arrangement). See *Non-Final Rejection* at 6-7 (28 February 2006). Therefore, *Brettell* anticipates all limitations of the claim.

Claim 4 is limited to “a transducer as claimed in claim 1,” as covered by *Brettell*. This claim is rejected for the same reasons apropos the rejection of claim 1 *supra* and apropos the rejection of claim 4 in the Non-Final Rejection filed 20 March 2007. Therefore, *Brettell* anticipates all limitations of the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 1, 2, 5, 6, 9-14, 17, 18, 20 and 23-26 are rejected under 35 U.S.C. 102(b) as being unpatentable over Bolleman et al. (US Patent 5,682,075) in view of Brettell.**

Claim 1 is limited to “an electromechanical transducer.” With the exception of the newly added limitation, this claim is rejected for the same reasons apropos the rejection of claim 1, as covered by *Bolleman* in view of *Brettell*, in the Non-Final Rejection filed 20 March 2007.

Art Unit: 2615

The analysis of the new claim limitation *supra* is incorporated into this rejection. Ergo, *dynamically* carries the ordinary meaning, and the limitations *dynamically controlled* and *means for dynamically controlling* are anticipated by the effect audio source 20 has over the *Bolleman* transducer. *Bolleman* at col. 3 ll. 6-11 & col. 4 ll. 62-66. Therefore, *Bolleman* in view of *Brettell* makes obvious all limitations of the claim.

Claims 2, 5, 6 and 12-14 are limited in part to “a transducer as claimed in claim 1,” as covered by *Bolleman* in view of *Brettell*, while **claims 17, 18 and 20** are limited to “a method for transforming energies from mechanical energy into electrical energy and/or vice versa.” These claims are rejected for the reasons apropos claim 1 *supra* as well as the respective reasons in the Non-Final Rejection filed 28 February 2006.

Claims 9-11 are limited in part to “a transducer as claimed in claim 1,” as covered by *Bolleman*, while **claims 23-25** are limited in part to “a method for transforming energies from mechanical energy into electrical energy and/or vice versa.” These claims are rejected for the reasons apropos claim 1 *supra* as well as the respective reasons in the Non-Final Rejection filed 28 February 2006.

Claim 26 is limited to “a transducer as recited in claim 1,” as covered by *Bolleman*. In describing the operation of the transducer, *Bolleman* states, “[i]f, for example, porous structure 16 supporting electrode sheet 4 is fixed to a foundation, and carrier film 1 with optional protective covering layer 15 are free to move, then electrode 2 will move in response to signal voltage V.sub.ac.” *Bolleman* at col. 4 ll. 62-67 & col. 5 ll. 1-16. Since layers 1 and 15 are fixed to layer 2, those outer layers also move, which creates a change in the overall thickness of the

transducer as claimed. *Id.* at fig.2. Therefore, *Bolleman* in view of *Brettell* makes obvious all limitations of the claim.

3. **Claims 7, 8, 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bolleman in view of Brettell and further in view of Kirjavainen (US Patent 4,654,546).**

Claims 7 and 8 are limited in part to “a transducer as claimed in claim 1,” as covered by Bolleman, while **claims 21 and 22** are limited in part to “a method for transforming energies from mechanical energy into electrical energy and/or vice versa.” These claims are rejected for the reasons apropos claim 1 *supra* as well as the respective reasons in the Non-Final Rejection filed 28 February 2006.

4. **Claim 16 is rejected under 35 U.S.C. 102(b) as being anticipated by Brettell in view of Tamura et al. (US Patent 3,894,199).**

Claim 16 is limited to “a transducer as claimed in claim 1,” as covered by Brettell. This claim is rejected for the reasons apropos claim 1 *supra* as well as the respective reasons in the Non-Final Rejection filed 28 February 2006.

Allowable Subject Matter

The following is a statement of reasons for the indication of allowable subject matter:

5. **Claims 15 and 27 are allowed.**

Claim 15 is limited to “an electromechanical transducer.” This claim is allowable for the reasons in the Non-Final Rejection filed 20 March 2007.

Claim 27 is limited to “a method for producing or attenuating sound pressure or vibration.” This method comprises providing a transducer with two transducer elements that change their thickness and feeding separate control signals to each of the transducer elements. This is depicted in, for example, *Brettell*. *Brettell* at fig.7. While the amplitude and phase of the signals fed to each transducer element is adjusted by the complex impedance of the inductors, the signals are not controlled separately from each other since the signals are actually generated from each other. For example, the control signal driving diaphragm 123 is a function of the control signal driving diaphragm 121, which means the 123 signal is not controlled separately from its progenitor. Thus, claim 27 is allowable over the cited prior art.

Response to Arguments

Applicant's arguments filed 22 June 2007 have been fully considered but they are not persuasive.

Applicant argues apropos claim 1 that “each half of the Brettell structure (i.e., the half that extends from rigid plate 55 to rigid plate 54, and the half that extends from rigid plate 54 to plate 53) is bounded by a rigid plate, it appears that neither of these ‘transducer elements’ can change its overall thickness,” which is a requisite of the invention defined in claim 1. *Arguments* at 8. In essence, applicant has defined the *Brettell* transducer as two transducer elements comprising two rigid plates and a diaphragm, where one of the two rigid plates is shared by the two elements. Although the examiner agrees that *Brettell* fails to meet the claim limitations under applicant’s characterization, the examiner respectfully points out that the rejection apportioned only one rigid plate and diaphragm to each transducer element; for example, a first

Art Unit: 2615

element comprises rigid plate 43 and diaphragm 52, and a second element comprises rigid plate 42 and diaphragm 51. In this way, when the diaphragms displace from their biased position, they move toward and away their associated rigid plate, which results in a change in thickness of each element. It is true that the *Brettell* transducer, however, does not change in overall thickness and a rejection of new claim 26 under the primary teachings of *Brettell* will not be established.

All of applicant's remaining arguments concern the *dynamic* limitation, and are thoroughly addressed in the rejections of claim 1 *supra*.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Art Unit: 2615

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter F. Briney III whose telephone number is 571-272-7513. The examiner can normally be reached on M-F 8am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on 571-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/wfb/
10/29/07



SINH TRAN
SUPERVISORY PATENT EXAMINER